CLAIMS:

1. A method of distributed allocation for a Medium Access Control (MAC) that enables real-time transmission as well as non real-time transmission of devices on an unpredictable medium wherein a time frame comprises at least one part (part#1) for real-time transmission and another part (part#2) for non real-time transmission, characterized by the steps of - monitoring the medium; - pre-occupying a slot and - sending data.

2. Method as claimed in claim 1, characterized in that during the monitoring step a device counts the slots that are already occupied.

3. Method as claimed in claim 2, characterized in that the device counts the slots that are already occupied by counting busy and release signals that are transmitted before and after a data package is transmitted by another device.

4. Method according to any one of the preceding claims, characterized in that the device detects the time used by the slots (T_busy_slots) within the frame.

5. Method as claimed in claim 4, characterized in that the detection of the time used by the slots (T_busy_slots) is done by counting busy signals.

6. Method according to any one of the preceding claims, characterized in that during the preoccupation step a device with a given slot number (n+1) counts the n previous busy and release signals and subsequently occupies the frame with it's slot number (n+1) and if a collision occurs after a random time sends a release signal and after a random back-off delay returns to the monitoring step.

7. Method according to any one of the preceding claims, characterized in that during the send data step those devices occupying slots after an unused one compete for the free slot.

8. A method for re-organizing the sequence for the medium access of at least two devices when an unused slot is detected, the at least two devices constitute a network wherein time slots are used for data transmission, characterized in that each of the at least two devices sends a busy priority signal and that the device with the highest priority occupies the unused time-slot and updates it's slot number.

9. Method as claimed in claim 8, characterized in that the busy priority signal comprises an application priority field and a slot priority field.

10. Method according to claim 8 or 9, characterized in that during non real-time transmission (part#2) of the medium the access is based on a contention-based protocol.

11. A method for avoiding collision between a non real-time transmission and the beginning of a time frame, characterized in that a guard slot is generated just before the beginning of the time frame.

12. A method of synchronizing a device that intends to occupy a time slot in a shared medium wherein a time frame comprises several time slots, characterized in that the device senses the medium for a Master Frame Symbol (MFS) transmitted by a master device and -- if a Master Frame Symbol (MFS) is sensed, the device becomes a client device, transmits an Echo Frame Symbol of first order and adopts the frame time (t_frame) of the master device; -- if a Master Frame Symbol (MFS) is not sensed, the device takes on the role of a master device and transmits a Master Frame Symbol.

13. A method of synchronizing a device that intends to occupy a time slot in a shared medium wherein a time frame comprises several time slots, a master device

sets a time frame and at least one client device transmits an Echo Frame Symbol (EFS), characterized in that the device senses the medium for an Echo Frame Symbol (EFS) of i-th order transmitted by a client device and

-- if an Echo Frame Symbol (EFS) of i-th order is sensed and a preset maximum number of hops (h=max) is not reached, the device transmits an Echo Frame Symbol of (i+1)-th order, computes the frame time (t_frame) of the master and adopts the frame time (t_frame) of the master device;

-- if an Echo Frame Symbol (EFS) of i-th order is sensed and a preset number of hops (h=max) is reached, the device continues with sensing the medium;

-- if any Echo Frame Symbol (EFS) is not sensed, the device takes on the role of a master device, sets the time frame and transmits a Master Frame Symbol (MFS).

14. A frame structure for a time frame or super frame that enables both real-time and non real-time transmission, characterized in that the frame structure comprises - a Master Frame Symbol (MFS), - an Echo Frame Symbol (EFS) and - a transmission portion with a first part (part#1) for real-time transmission and a second part (part#2) for non real-time transmission.

15. Frame structure as claimed in claim 14, characterized in that the transmission part comprises time slots.

16. Use of one of the methods as claimed in any of the claims 1 to 13 in a power line or wireless Local Area Network (LAN) for a transmission with constant bit rate of data belonging to the group of Voice, Voice over IP, Video, ISDN, LBA, VBA, MPEG.

17. Use of one of the methods as claimed in any of the claims 1 to 13 in a power line or wireless Local Area Network (LAN) for a transmission with variable bit rate of data for applications belonging to the group of Ethernet, Internet, printer or using HTTP or FTP.